

REMARKS

In the Office Action dated January 29, 2003, claims 1-21 are pending. Claims 1, 13, 17, and 20 have been amended. Claim 4 has been canceled. Note that claims 1, 13, 17, and 20 are independent claims from which all other claims depend therefrom.

Claims 1-7, 10-14, and 17-21 stand rejected under 35 U.S.C. 102(b) as being anticipated by Turnbull et al. (6,166,698). Independent claims 1, 13, 17, and 20 have similar limitations and are therefore discussed together.

Independent claims 1 and 17 are directed respectively towards a real time stamp synchronization system and method for an automotive vehicle. The system includes a vehicle clock that stores a current time. A time receiver receives a real time signal. An object detection system generates an object detection signal. A collision system controller is electrically coupled to the vehicle clock, the time receiver, and the object detection system. The collision controller synchronizes the current time with the real time signal and stores the object detection signal in synchronization with the real time signal.

Independent claims 13 and 20 are directed respectively towards a collision evaluation system and method for reconstructing a vehicle collision event. Claims 13 and 20 include the limitations contained within claims 1 and 17 and are further limited to include the limitation of reconstructing a collision event in response to a vehicle collision event signal. The real time stamp synchronization system generates a vehicle collision event signal corresponding to the collision event in real time. A collision evaluation center is in communication with the vehicle and stores the vehicle collision event signal. The collision evaluation center reconstructs the collision event in response to the vehicle collision event signal.

The present invention not only synchronizes a real time signal with a host vehicle clock, but also synchronizes an object detection signal with the real time signal. The object detection signal may contain object related information. An object, as intended by the Applicant, may be an automotive vehicle, a pedestrian, a building, a road construction device, or other object in proximity of the host vehicle. The object detection system includes sensors that are applicable in detection of an object, such as motion sensors, radar sensors, and other similar sensors known in the art. In so doing, the present invention is better capable of reconstructing a vehicle collision event by storing information such as object relative distance, velocity, and position with respect to the host vehicle in real time.

Turnbull is directed towards a rearview mirror with an integrated microwave receiver. Turnbull teaches storing of vehicle-generated data during a crash within a vehicle data recorder memory in synchronization with a global positioning system (GPS) clock. Information collected from devices, such as airbags, impact sensors, and inertial detectors that are contained within the vehicle is stored. Host vehicle velocity, direction of travel, and position are also stored. Multiple vehicles may have similar systems and be synchronized to the GPS time to provide a common clock for recording of crash event information.

Turnbull does not teach or suggest an object detection system, generation of an object detection signal, and synchronization of the object detection signal with a real time signal. Nowhere in Turnbull is object detection mentioned. Turnbull teaches use of a magnetic compass sensor, a glare sensor, and an ambient light sensor, all of which are not applicable in detection of an object. The Office Action refers to col. 7, lines 66 to col. 8, lines 1-13 for disclosing an object detection system and generation of an object detection signal. The stated section discloses use of a GPS for determining positioning of the host vehicle, this is not the same as detection of objects in proximity with a host vehicle.

Also, in regards to claims 13 and 20, the collision event signal of the present invention may include information from the object detection signal. Since Turnbull does not teach or suggest an object detection signal, Turnbull therefore also does not teach or suggest a collision evaluation center receiving information from an object detection signal.

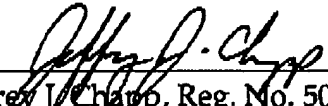
Additionally, in regards to claim 13, Turnbull does not teach or suggest receiving a real time signal from a time center. The present invention receives a real time signal from a time center, such as the National Institute of Standards (NIST) whereas Turnbull receives a time signal from a GPS. Although, the present invention, in its entirety, is not limited to receiving a real time signal from a time center, Applicant in using the term 'time center' in claim 13 intended to refer to a time center, such as the NIST center or the like. Thus, the Applicant in including the limitation of a time center is not referring to a GPS.

Turnbull does not teach or suggest use of an object detection system, generation of an object detection signal, synchronization of the object detection system with real time, a collision evaluation center receiving information from an object detection signal, or receiving a real time signal from a time center. Therefore, claims 1, 13, 17, and 20 are novel and nonobvious and are in a condition for allowance. Additionally, since claims 2, 3, 5-12, 14-16, 18-19, and 21 depend from claims 1, 13, 17, and 20, respectively, they are also novel and nonobvious for at least the same reasons.

In light of the amendments and remarks, the Applicants submit that all objections and rejections are now overcome. The Applicants have added no new matter to the application by these amendments. The application is now in condition for allowance and expeditious notice thereof is earnestly solicited. Should the Examiner have any questions or comments, he is respectfully requested to call the undersigned attorney.

Respectfully submitted,

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"VERSION WITH MARKINGS TO SHOW CHANGES MADE"

In the claims:

Kindly substitute the following for pending claim 1:

1. (Amended) A real time stamp synchronization system for an automotive vehicle comprising:

a vehicle clock storing a current time;

a time receiver receiving a real time signal [from a time center];

an object detection system generating an object detection signal; and

a collision system controller electrically coupled to said vehicle clock, [and] said time receiver, and said object detection system, said collision controller synchronizing said current time with said real time signal and storing said object detection signal in synchronization with said real time signal.

Kindly cancel claim 4.

Kindly substitute the following for pending claim 13:

13. (Amended) A collision evaluation system for reconstructing a vehicle collision event comprising:

a real time stamp synchronization system, said real time stamp synchronization system receiving a real time signal from a time center and synchronizing a vehicle clock to said real time signal, said real time stamp synchronization system generating a vehicle collision event signal corresponding to the collision event in real time;

said real time stamp synchronization system comprising:

an object detection system generating an object detection signal;
and

a collision system controller electrically coupled to said object
detection system and storing said object detection signal in
synchronization with said real time signal; and

a collision evaluation center in communication with said vehicle, said
collision evaluation center storing said vehicle collision event signal, said
collision evaluation center reconstructing said collision event in response to said
vehicle collision event signal.

Kindly substitute the following for pending claim 17:

17. (Amended) A method of real time stamping synchronization of
automotive vehicle related systems for an automotive vehicle comprising:

storing a current time on a vehicle clock;

receiving a real time signal; [and]

synchronizing said current time with said real time signal;

generating an object detection signal via an object detection system; and

storing said object detection signal in synchronization with said real time
signal.

Kindly substitute the following for pending claim 20:

20. (Amended) A method of reconstructing a collision event
comprising:

generating and transmitting a real time signal;

receiving said real time signal and synchronizing a vehicle clock to said real time signal;

generating an object detection signal via an object detection system;

storing said object detection signal in synchronization with said real time signal;

generating a vehicle collision event signal corresponding to the collision event in real time;

storing said vehicle collision event signal; and

reconstructing the collision event in response to said vehicle collision event signal.